DEC 0 4 2003 BY

TITLE: CENTRIFUGAL FLUID PUMP APPARATUS

INVENTOR(S): TAKESHI TSUBOUCHI ET AL.

APPLICATION SERIAL NO: 10/613,068 SHEET 1 of 9

57 54 55 electromagnet current monitoring part power amplifier 41 position sensor output sensor circuit monitoring part control part 42 34 motor control power amplifier circuit 56 51

FIG. 1



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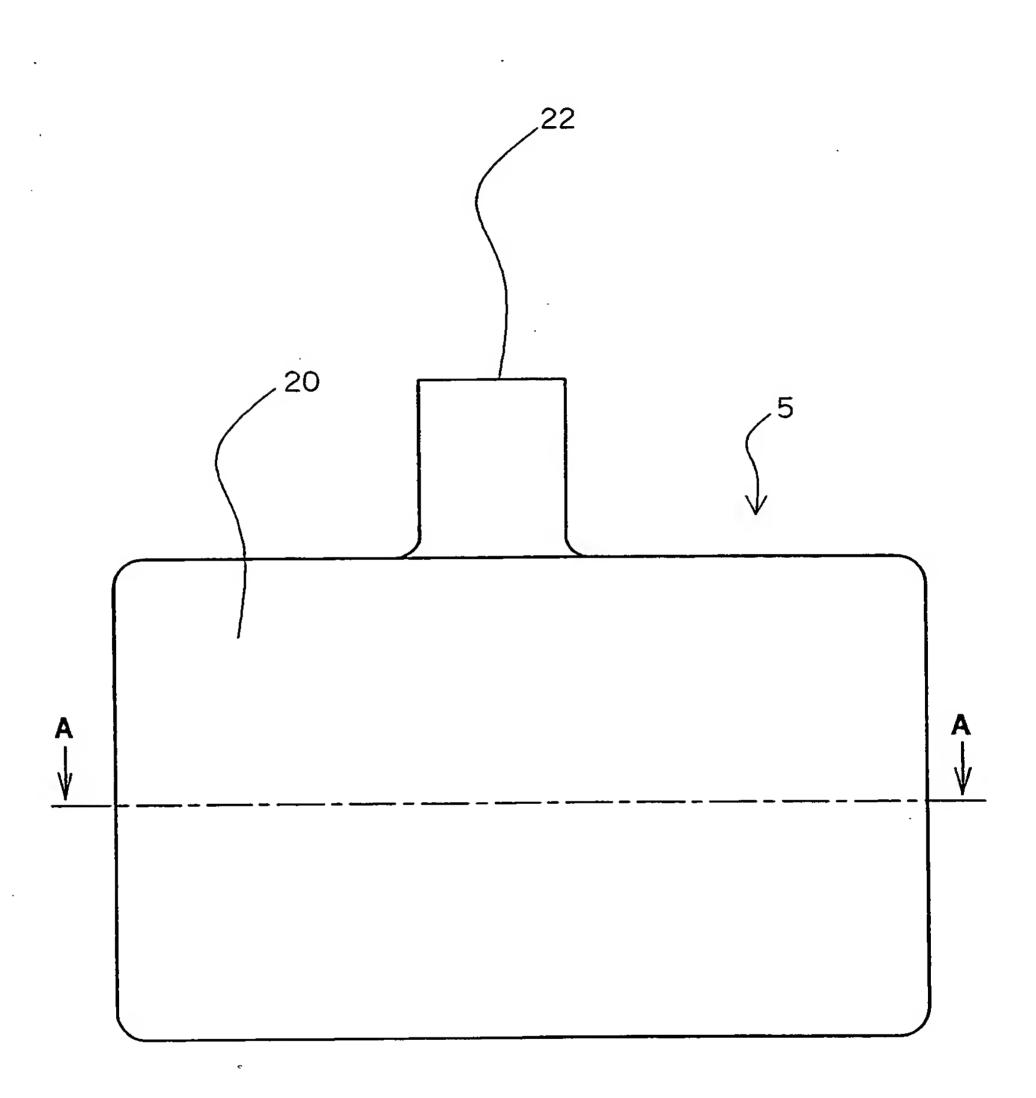


FIG. 2

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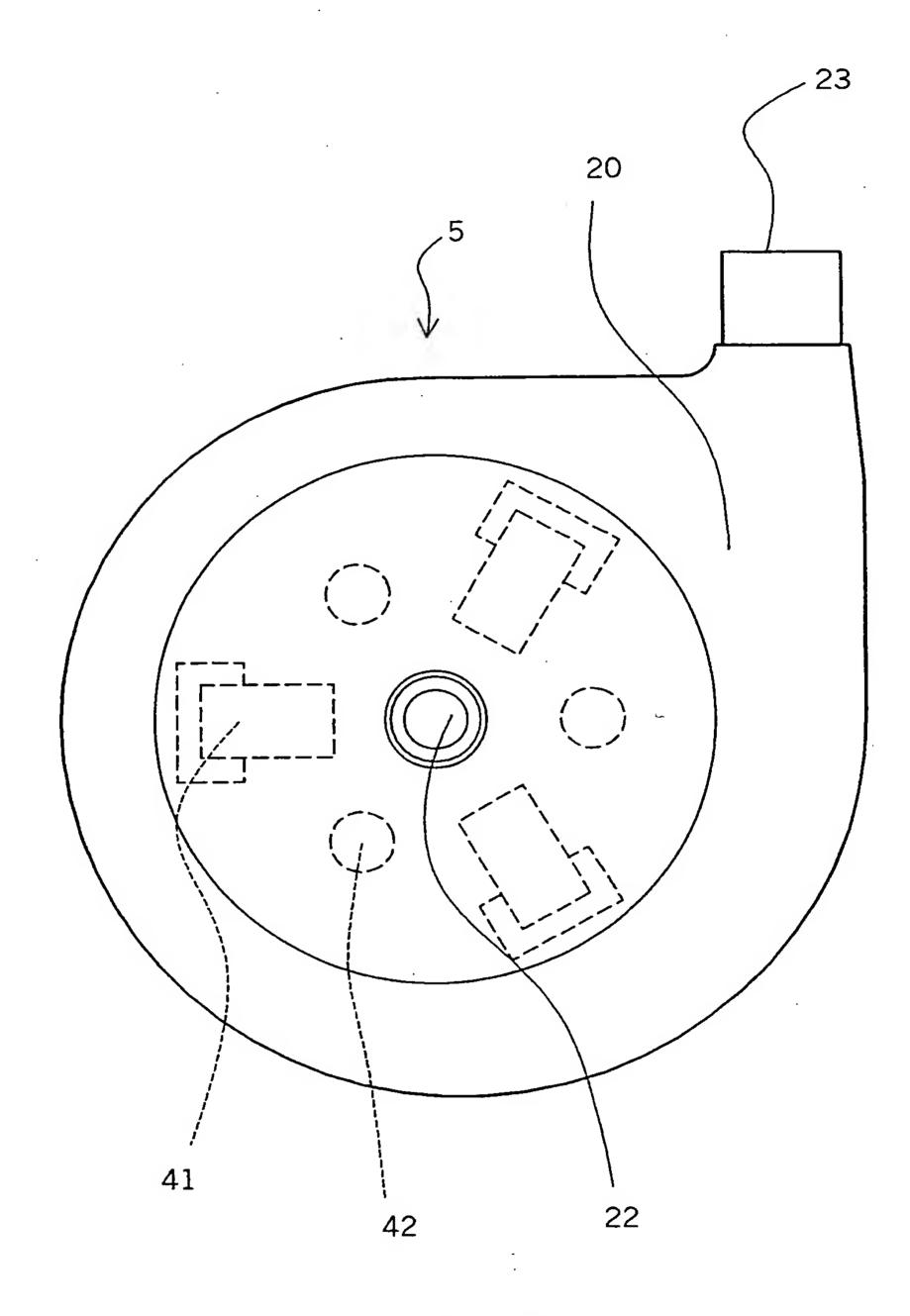
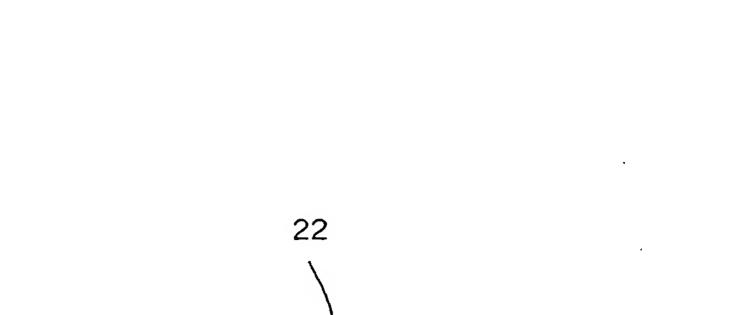


FIG. 3

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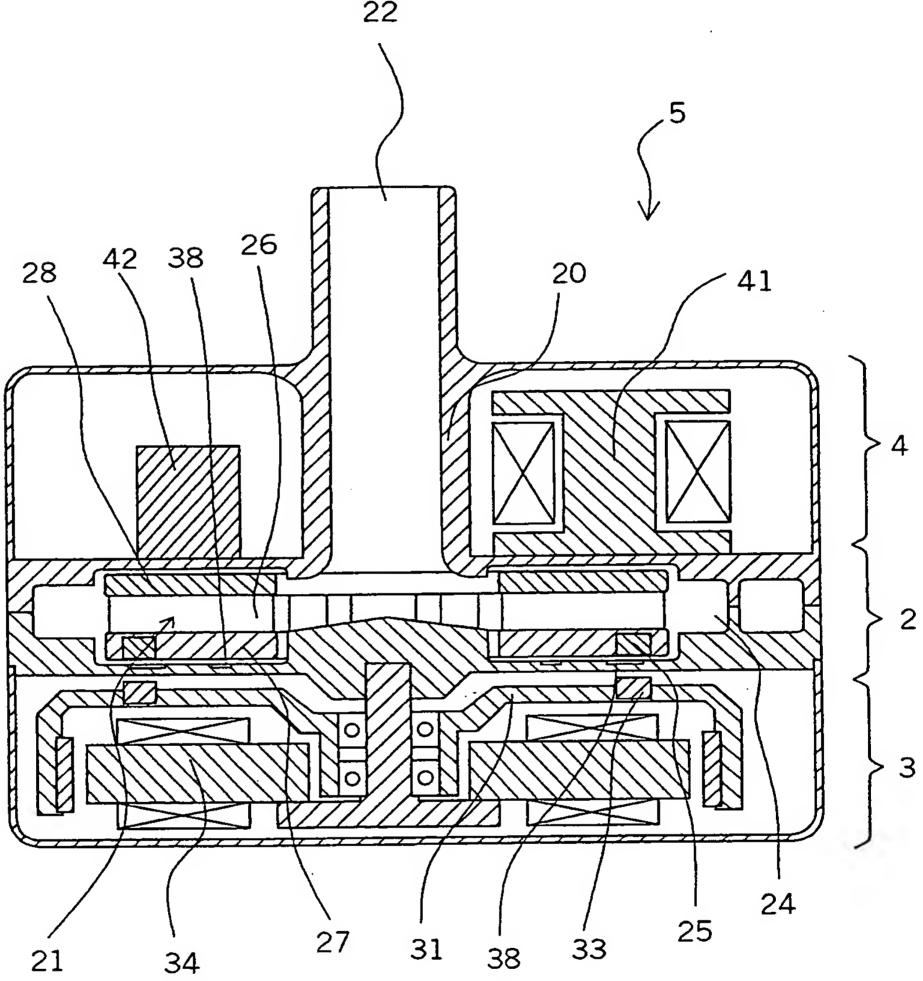


FIG. 4



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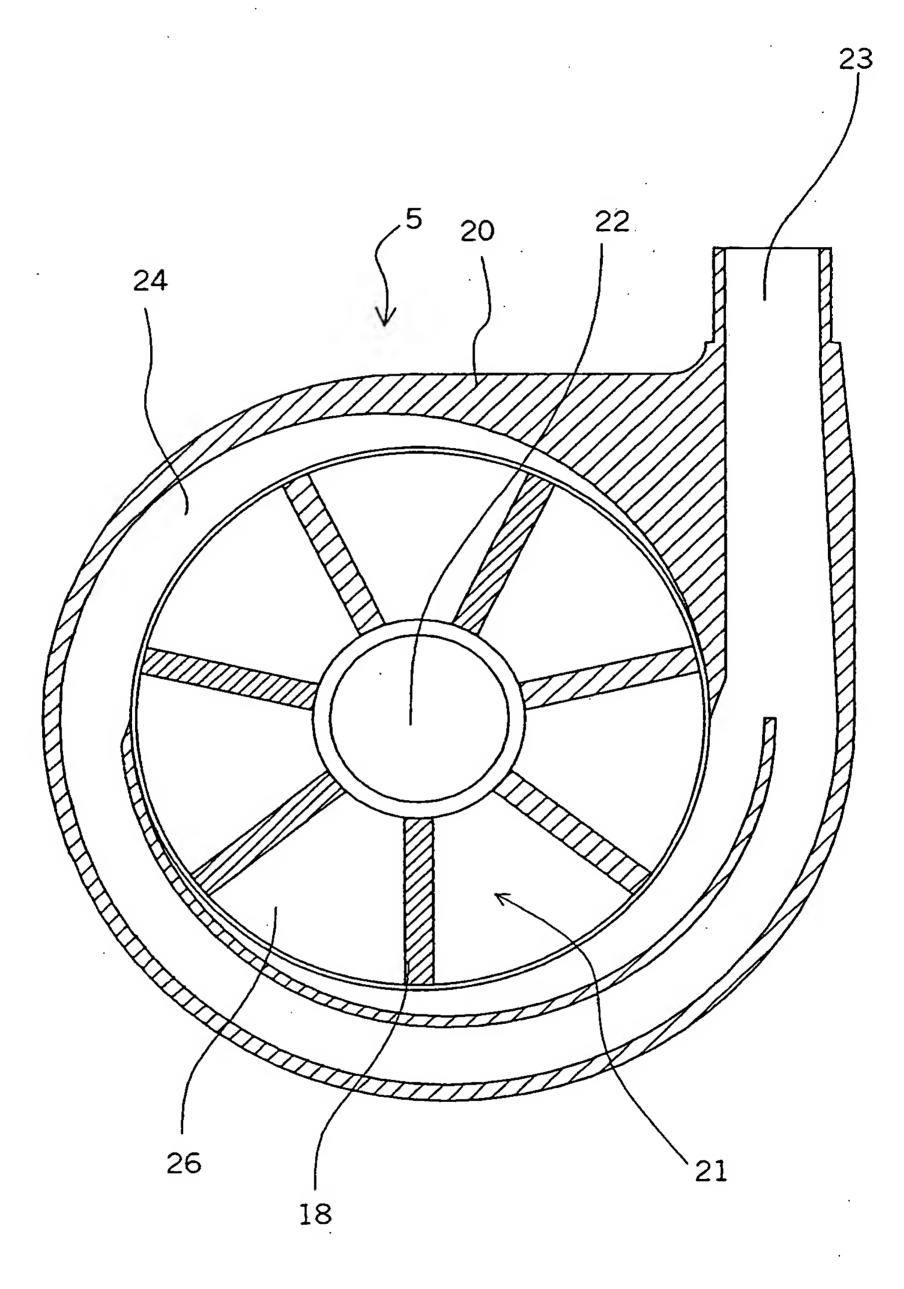


FIG. 5

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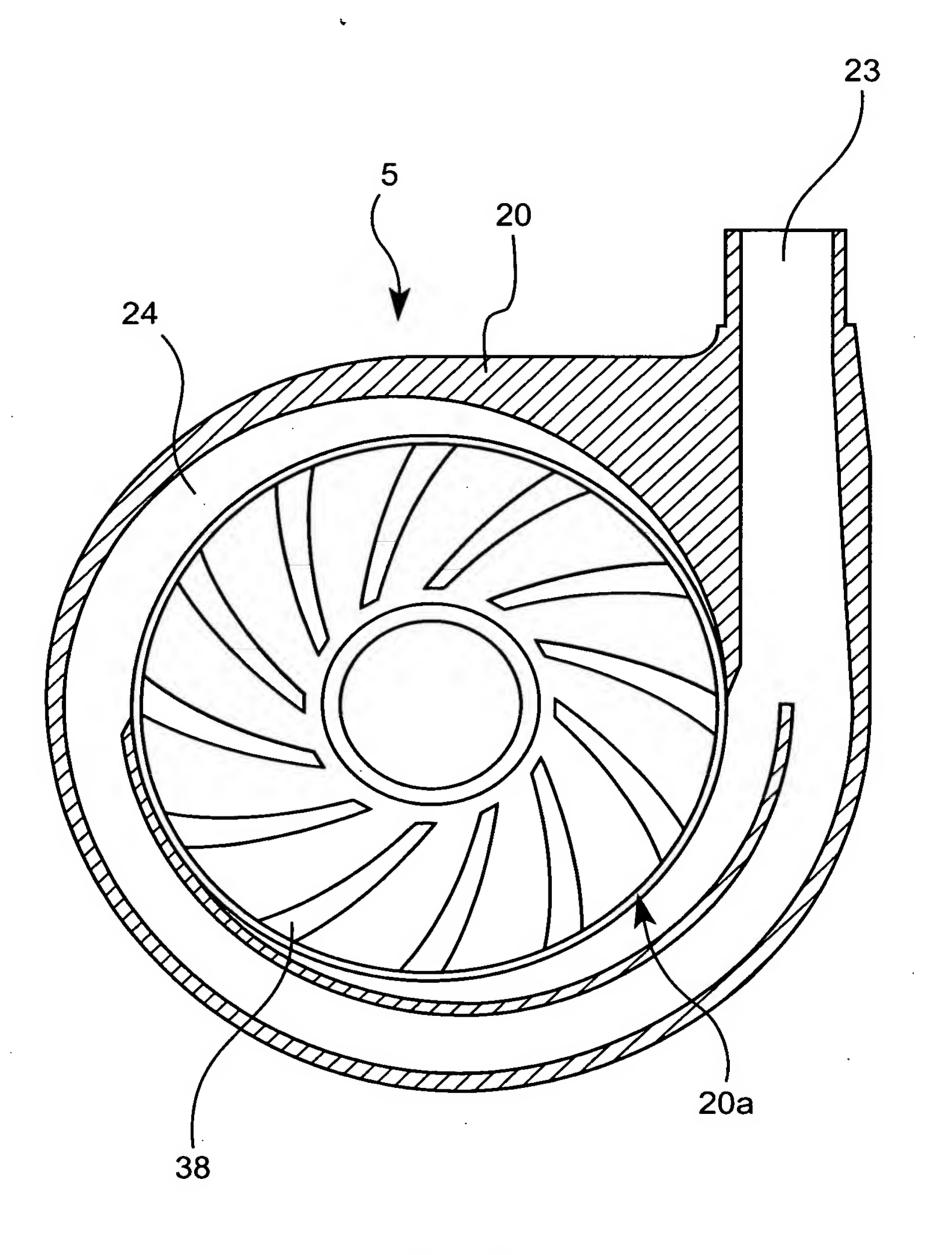


FIG. 6



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Failure of magnetic bearing is detected (STOP MOTOR)

Confirm MOTOR STOP (2nd attempt)

Confirm MOTOR STOP (2nd attempt)

Confirm MOTOR STOP (2nd attempt)

Fig. 7A

Electromagnet current

Signature of the contract of the contra

FIG. 7B

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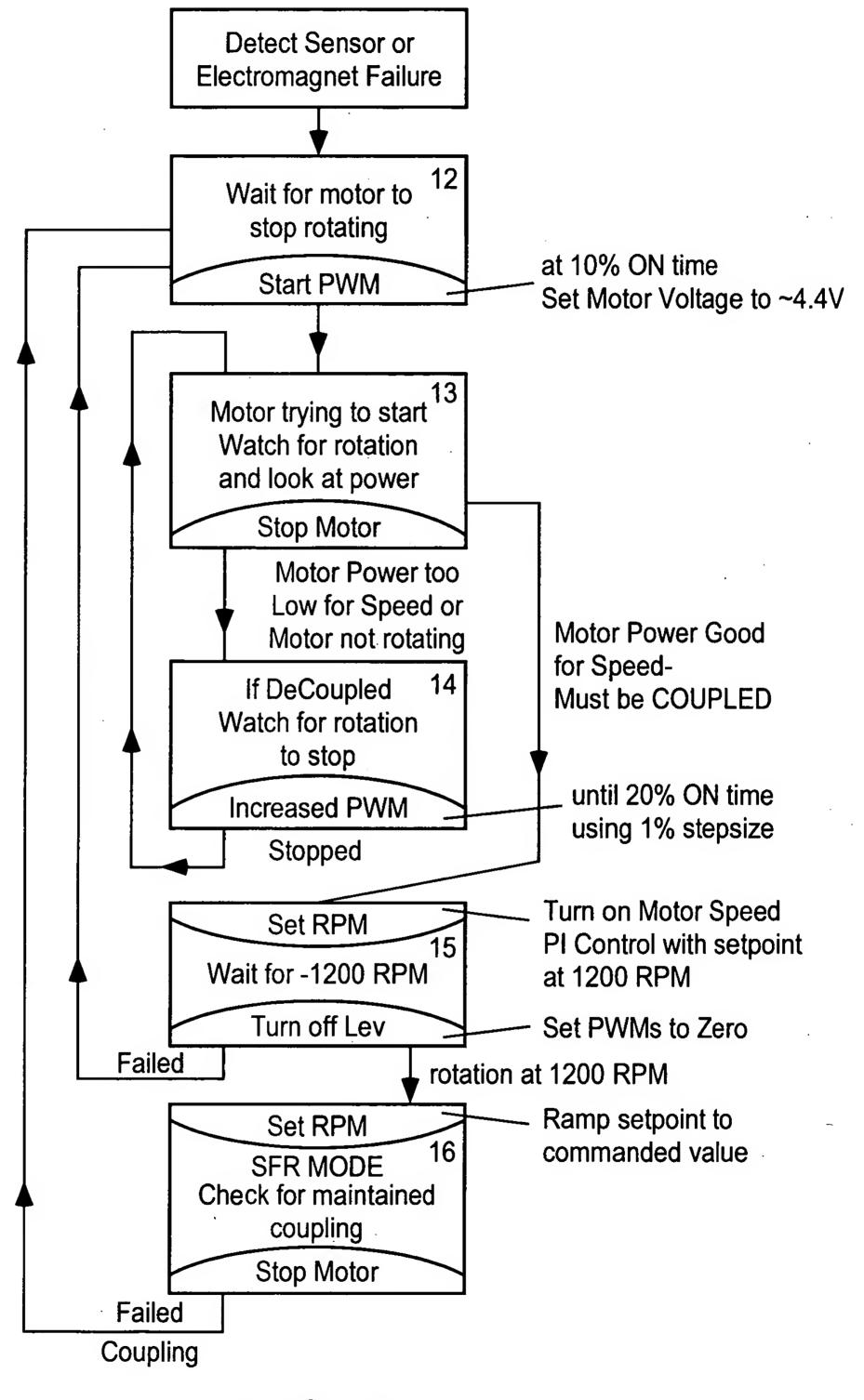
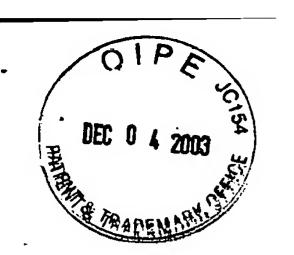


FIG. 8



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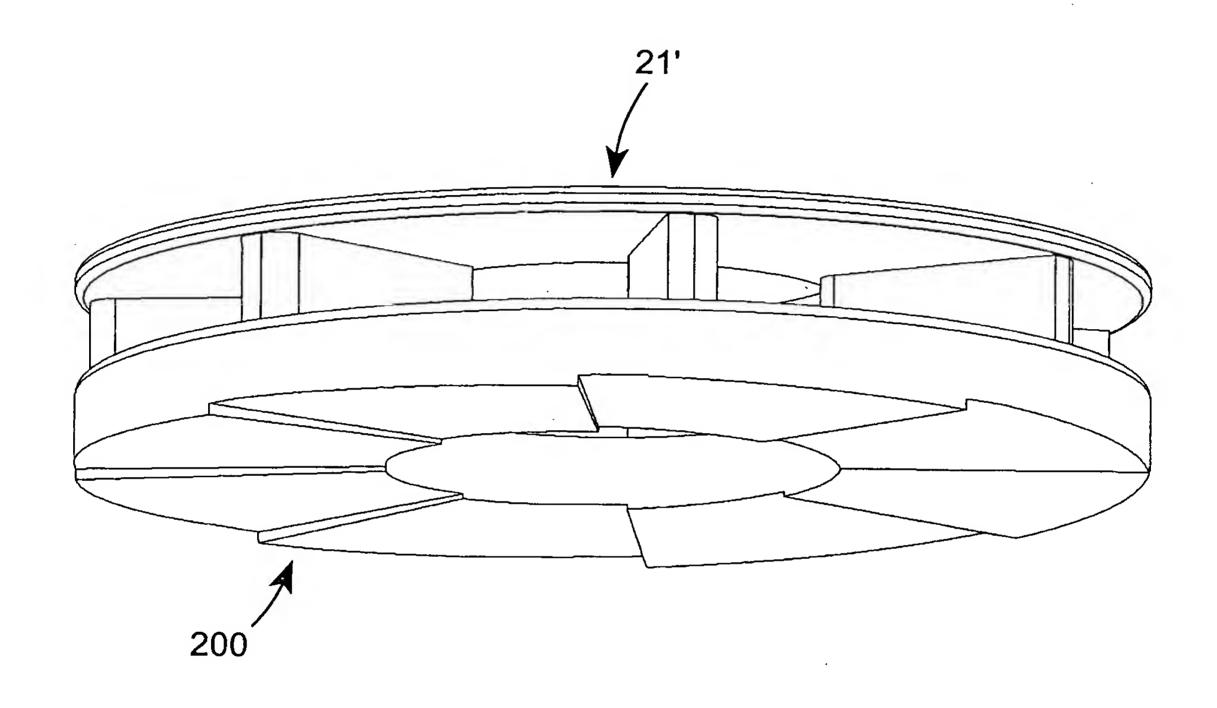


FIG. 9